a heavy oak plank, despite the fact that the flying splinter was so decayed that it crumbled while being drawn out. The Methodist church was destroyed in an even more singular manner. Each of the four walls fell inward, forming a succession of layers, one on top of the other, and all surmounted by the steeple. The cyclone wind, after the roof had been taken away, evidently formed a vacuum inside the church, which resulted in all the walls closing in.

Tornado No. 3 started about 25 miles south of No. 2 in the northern portion of Sunflower County, Miss., passing 6 miles south of the town of Sumner, Tallahatchie County, at about 4:30 p. m.; moved northeast through the counties of Tallahatchie, Panola, Lafayette, touching the southern portion of Marshall and Benton, through Tippah and Alcorn, and passing into Tennessee just north of Corinth. In its movement northeastward from Sunflower County, the storm passed near Batesville at 5:30 p. m., doing only slight damage. From there it seems to have touched the earth only occasionally, passing over Abbeville, and striking the earth again near the town of Bethlehem in Marshall County at 6:30 p. m., where it destroyed 3 buildings, and passed on to Tacaleeche, Benton County, wrecking two or three small dwellings about 6:45 p. m. It reached Ripley, Tippah County, at 7:10 p. m. Its track at this place was about 200 yards wide, and within 7 miles of town at least 25 dwellings were destroyed and a large number of people injured, but none are reported killed. From Ripley the storm passed through a fine farming district destroying many dwellings and other property. The next point of attack was Corinth, Alcorn County, where it arrived at 7:30 p. m., but as it passed to the south of the town no fatalities occurred, and the damage was mostly confined to negro cabins, many being blown away. The distance from the point of starting to Corinth is about 125 miles; time, three hours and thirty minutes.

After entering Tennessee the storm's track was through a section of country from which it is difficult to obtain even meager information, but it is known to have continued its course to the northeast, and entering the southeastern portion of Maury County, reached Columbia two hours after leaving Mississippi, or at 9:30 p. m. The tornado passed through the suburbs of Columbia in a northeasterly direction, sweeping a path from 100 to 300 yards wide and destroying everything within its reach; 27 persons were killed and between 60 and 70 more or less injured. About 50 dwellings were destroyed, and the loss in buildings alone is estimated at $30,000. A settlement near Columbia, known as Macedonia, about 2 miles from the original striking point of the tornado, containing about 25 houses, was completely demolished, and 13 people were buried under the débris. After leaving Columbia the tornado cloud disappeared. Total distance traveled, 215 miles; time, five hours and thirty minutes.

Tornado No. 4 started about 6 p. m. in Williamson County, Tenn., a few miles south of Franklin; it passed through the town of Clovercroft, and struck Nolandsville at 6:30 p. m., where 3 persons were killed and about 13 buildings destroyed. Passed through Lavergne, in the southeast corner of Davidson County, at 6:41 p. m., killing 2 persons and demolishing 25 buildings. As I have not been able to trace this storm beyond Lavergne it is probable it left the earth at that point. Distance traveled, about 25 miles.

Tornado No. 5 probably had its origin in the extreme southeastern portion of Arkansas, but first came into notice not far from the town of Huntington, Bolivar County, Miss., at 7 p. m. In the vicinity of Huntington 10 buildings were destroyed and about 20 persons injured. From Huntington the storm moved northeast and reached Cleveland in the same county at 7:50 p. m., wrecking a number of houses on the Sparkman and Coleman plantations, and injuring a number of people. From Cleveland the storm passed through Sunflower and Tallahatchie counties, a few miles south of the path taken by No. 3, and disappeared near the town of Reynolds in the southeastern corner of Panola County, Miss., at 9:30 p. m. Distance traveled, 95 miles; time, two hours and thirty minutes, or about 40 miles an hour.

Tornado No. 6 started in Marshall County near the town of Coyce, and, moving northeast, struck the town of Tracy, completely demolishing the two-story residence of Mr. J. B. Higgins, sweeping it entirely away, also the brick office of Dr. Berkley, as well as the frame store of Mr. Walker. Leaving Tracy it next visited the little town of Vance, located in the northern edge of Marshall County, where a general store and 10 cabins were destroyed and 3 children killed. The tornado then passed into Tennessee, and reached Moscow, Fayette County, at 7:15 p. m. Here it destroyed the residence of Mr. J. Owens, seriously injuring the inmates, and also demolished several farm houses in the vicinity. This storm was distinctly seen at Collierville, Tenn., and also from Memphis. Distance traveled, 24 miles; time, about 30 minutes.

Besides the tornadoes above noted, two occurred in northern Alabama, one between 6 and 7 p. m., and the other during the early morning of November 21.

The money value of the property destroyed by these tornadoes can not be accurately known, but it is certainly not less than half a million dollars.

THE WEATHER OF THE MONTH.

By ALFRED J. HENRY, Professor of Meteorology.

CHARACTERISTICS OF THE WEATHER FOR NOVEMBER.

The weather of November, 1900, was rather stormy, in marked contrast to that of October, 1900. The area of high pressure over the eastern seaboard, which has been so marked a feature in the pressure distribution of the last four months, gave way early in the month and areas of high pressure began again to move in a southeasterly direction.

The temperature was generally above normal, except in the upper Mississippi Valley and in the extreme northwest, where the average daily negative departure was from 3° to 6°. Heavy snows occurred in the northern Rocky Mountain districts during the 20th and 21st, but the snowfall elsewhere was comparatively light.

A series of tornadoes occurred in southeastern Arkansas, northern Mississippi, and western and middle Tennessee on the 20th, a special report of which appears elsewhere in this REVIEW.

The distinguishing characteristics of the month were (1) the breaking up of the area of high pressure over the eastern seaboard, (2) a movement of the highs southeastward, and (3) the occurrence of severe tornadoes in the middle Mississippi Valley.

PRESSURE.

The distribution of monthly mean pressure is graphically shown on Chart IV, and the numerical values are given in Tables I and X.

As compared with the preceding month the monthly mean pressure was higher from the eastern Gulf States westward and northwestward over the entire Mississippi Valley and thence westward to the Pacific coast. The region of greatest increase was in the upper Missouri Valley, the Dakotas, and thence northward as far as the field of observation extends. Over this area pressure was from .25 to .30 inch higher than during the preceding month. From the eastern Gulf States northeastward to the Canadian Maritime Provinces, pressure was about one-tenth of an inch lower than during the preceding month. Pressure was below the normal for the season on the Pacific coast, and also over the Middle Atlantic States and New England; elsewhere it was above the seasonal average.

TEMPERATURE OF THE AIR.

The distribution of monthly mean surface temperature, as deduced from the records of about 1,000 stations, is shown on Chart VI.

As in the preceding month temperature was above the normal for the season over the greater part of the field of observation, the only marked exception being in the upper Missouri and upper Mississippi valleys, and thence westward along the northern boundary to the Pacific where the daily mean temperature averaged as much as 6° below the seasonal normal. There were no marked cold waves during the month, except in the extreme northwest and in the northern Rocky Mountain districts. Temperatures below freezing did not occur on the immediate Gulf coast nor on the Atlantic coast, except from southern New Jersey northward. Freezing temperatures were recorded in the interior of the country, except in Florida and along the coasts as above indicated. The lowest minimum temperature registered at any of the regular observing stations was 32° below zero at Medicine Hat.

The average temperature for the several geographic districts and the departures from normal values are shown in the following table:

Average temperatures and departures from the normal.

Districts.	Number of stations.	Average temperatures for the current month.	Departures for the current month.	Accumulated departures since January 1.	Average departures since January 1.
		°	°	°	°
New England	10	42.8	+ 2.6	+15.3	+ 1.4
Middle Atlantic	12	49.0	+ 4.3	+23.2	+ 2.1
South Atlantic	10	57.8	+ 3.0	+12.6	+ 1.1
Florida Peninsula	7	67.3	+ 0.5	+ 0.9	+ 0.1
East Gulf	7	59.8	+ 2.5	+ 4.9	+ 0.4
West Gulf	7	59.7	+ 3.2	+13.9	+ 1.3
Ohio Valley and Tennessee	12	47.0	+ 2.0	+18.7	+ 1.8
Lower Lake	8	41.2	+ 2.2	+17.8	+ 1.6
Upper Lake	9	33.6	+ 0.2	+23.2	+ 2.1
North Dakota	8	21.3	− 3.6	+36.6	+ 3.3
Upper Mississippi Valley	11	38.0	+ 0.6	+24.1	+ 2.2
Missouri Valley	10	37.0	+ 0.2	+30.2	+ 2.7
Northern Slope	7	31.8	− 0.5	+32.6	+ 3.0
Middle Slope	6	43.4	+ 1.9	+24.3	+ 2.2
Southern Slope	6	51.4	+ 2.5	+12.0	+ 1.1
Southern Plateau	15	49.6	+ 2.9	+ 7.2	+ 0.7
Middle Plateau	9	40 5	+ 3.8	+17.4	+ 1.6
Northern Plateau	10	34.9	− 1.2	+20.3	+ 1.8
North Pacific	9	44.7	-- 0.7	−10.6	− 1.0
Middle Pacific	5	54.9	+ 1.3	+ 8.3	+ 0.8
South Pacific	4	62.1	+ 4.6	+11.6	+ 1.1

In Canada.—Prof. R. F. Stupart says:

The mean temperature of the month was higher than the average by from 1° to 3° in the more southern portions of Ontario and in Nova Scotia, and about 1° above in nearly all parts of New Brunswick and Quebec. West of Lake Nipissing the departure from average was negative by about 1° near the southern shores of Lakes Huron and Superior, about 2° in Manitoba, and by between 3° and 5° in Assiniboia and British Columbia, and Vancouver Island was very nearly average. One of the most marked features of the month was the exceptionally severe cold which prevailed in the Northwest Territories between the 13th and 25th, during which period the temperature fell below zero at nearly all points on nine days, at some few places on ten or eleven days.

PRECIPITATION.

The distinguishing feature of the precipitation during the month was the heavy fall in California, especially in the southern portion, where severe drought has prevailed for the last three years. Heavy rains also fell in Arizona, and quite generally over the middle and southern plateaus; the rainfall was also above the normal for the season in Tennessee, the Ohio Valley, the lower Lake region, and along the coast of the Carolinas and Virginia.

There was decidedly more snow than during the corresponding month a year ago. The areas of greatest total depth for the month were in the lower Lake region, the St. Lawrence Valley, northern New England, upper Michigan, and the Rocky Mountain districts, especially in Colorado.

The numerical values of rainfall for a large number of stations are given in Table II. At the end of the month snow covered the ground in New England, except along the immediate coast, the greater portion of New York, and the ground was generally covered in northern Iowa, Minnesota, North Dakota, and the upper portions of Wisconsin and Michigan. Snow also covered the ground in the mountainous districts of Colorado, western Wyoming, Idaho, and California.

HAIL.

The following are the dates on which hail fell in the respective States:

Arizona, 18, 19. Arkansas, 23. California, 17, 19, 20. Connecticut, 7, 8. Illinois, 6, 7, 17, 18, 19, 20, 21, 22. Indiana, 8, 16, 21, 22. Indian Territory, 18. Kansas, 10, 23. Kentucky, 8, 22. Louisiana, 24. Maine, 9, 14. Maryland, 7. Massachusetts, 8, 9. Michigan, 5. Mississippi, 19. Missouri, 19, 23. Nevada, 19. New York, 22. Ohio, 20, 21. Oklahoma, 18. Oregon, 1, 17, 18, 19, 20. Tennessee, 21, 23, 24. Virginia, 8, 25. West Virginia, 23.

SLEET.

The following are the dates on which sleet fell in the respective States:

Alabama, 25. Arizona, 20. Arkansas, 9, 10, 11, 24, 25. California, 7, 17, 18, 19, 20, 30. Colorado, 18, 19, 20. Connecticut, 9, 17, 18, 24, 25. Georgia, 13. Idaho, 20, 21, 26, 30. Illinois, 6, 7, 10, 11, 13, 16, 17, 20, 23, 24, 25. Indiana, 5, 7, 8, 10, 14, 16, 17, 18, 20, 23, 24, 25. Indian Territory, 9, 11, 24, 25. Iowa, 1, 5, 6, 10, 12, 14, 16, 17, 18, 19, 20, 22, 23, 24. Kansas, 11, 17, 18, 19, 20, 21, 22, 23, 24. Kentucky, 8, 11, 21, 25, 26. Maine, 20, 25, 26. Massachusetts, 17, 25, 26, 30. Michigan, 5, 7, 8, 18, 19, 20, 21, 22, 24, 25, 28. Minnesota, 5, 8, 16, 17, 18, 19, 20. Mississippi, 10, 24. Missouri, 10, 11, 16, 17, 20, 21, 23, 24, 26, 27. Montana, 16, 30. Nebraska, 10, 11, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25. Nevada, 16, 17, 18, 20, 21. New Jersey, 7, 9, 11, 15, 17, 24, 27. New Mexico, 8, 26. New York, 9, 17, 19, 24, 25, 26, 27, 28, 29, 30. North Carolina, 8. Ohio, 7, 8, 10, 11, 16, 17, 23, 25, 26, 29. Oklahoma, 11, 19, 24. Oregon, 17, 18, 19, 20, 23. Pennsylvania, 17, 21, 24, 25. South Carolina, 12. South Dakota, 17, 18. Tennessee, 8, 10, 11, 25, 26. Texas, 9. Utah, 1, 17, 18, 19, 20, 21, 23, 26, 27. Virginia, 8. Washington, 16, 17, 18, 23. Wisconsin, 16, 17, 18, 19, 20. Wyoming, 17, 18, 20, 22.

Average precipitation and departure from the normal.

Districts.	Number of stations.	Average.		Departure.	
		Current month.	Percentage of normal.	Current month.	Accumulated since Jan. 1.
		Inches.		*Inches.*	*Inches.*
New England	10	4.30	108	+0.3	— 2.2
Middle Atlantic	12	3.00	97	—0.1	— 7.5
South Atlantic	10	3.90	130	+0.9	— 7.4
Florida Peninsula	7	0.82	34	—1.6	+ 1.3
East Gulf	7	3.10	84	—0.6	+ 9.2
West Gulf	7	2.44	62	—1.5	+ 2.3
Ohio Valley and Tennessee	12	5.28	147	+1.7	— 5.9
Lower Lake	8	4.06	128	+0.9	— 1.1
Upper Lake	9	2.50	100	0.0	— 2.3
North Dakota	8	0.72	116	+0.1	+ 2.3
Upper Mississippi Valley	11	1.81	82	—0.4	+ 0.9
Missouri Valley	10	0.79	61	—0.5	+ 2.6
Northern Slope	7	0.31	61	—0.2	— 1.3
Middle Slope	6	0.52	63	—0.3	+ 1.2
Southern Slope	6	1.04	91	—0.1	+ 8.8
Southern Plateau	15	1.47	258	+0.9	— 0.3
Middle Plateau	9	1.34	143	+0.4	— 2.7
Northern Plateau	10	1.23	75	—0.4	— 1.5
North Pacific	9	5.49	75	—1.8	— 1.6
Middle Pacific	5	4.77	161	+1.8	— 1.2
South Pacific	4	5.14	384	+3.8	— 0.5

In Canada.—Professor Stupart says:

In Ontario, Quebec, and the Maritime Provinces the precipitation was in excess of the average and chiefly in the form of rain; there were, however, several falls of snow in all districts, and in the St. Lawrence Valley there was a heavy northeast snowstorm during the 25th and 26th.

In Manitoba, Assiniboia, and southern Alberta the precipitation was almost wholly snow, and varied between 8 and 16 inches; in Saskatchewan and northern Alberta the fall was much less.

On the last days of the month the more southwestern portions of the northwest prairies were bare, but a covering of from 5 to 10 inches was very general in Manitoba and over most of Assiniboia, and as much as 20 inches was reported from Qu'Appelle. The more eastern and northern portions of Ontario reported several inches on the ground, but rapidly disappearing. In Quebec and over the greater portion of New Brunswick a covering was general, but nowhere very deep, 12 inches at Brome, Que., being the deepest reported. In southern and eastern Nova Scotia and in Prince Edward Island the depth ranged between 2 and 4 inches.

HUMIDITY.

The averages by districts appear in the subjoined table:

Average relative humidity and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
	%			%	
New England	79	+ 1	Missouri Valley	72	+ 1
Middle Atlantic	74	— 2	Northern Slope	69	+ 3
South Atlantic	78	— 1	Middle Slope	63	+ 1
Florida Peninsula	77	— 4	Southern Slope	65	+ 4
East Gulf	76	— 1	Southern Plateau	40	— 6
West Gulf	75	+ 2	Middle Plateau	59	+ 5
Ohio Valley and Tennessee	73	0	Northern Plateau	80	+ 7
Lower Lake	78	+ 2	North Pacific Coast	86	— 1
Upper Lake	83	+ 3	Middle Pacific Coast	79	+ 6
North Dakota	81	+ 2	South Pacific Coast	64	— 3
Upper Mississippi	76	+ 2			

SUNSHINE AND CLOUDINESS.

The distribution of sunshine is graphically shown on Chart VII, and the numerical values of average daylight cloudiness, both for individual stations and by geographical districts, appear in Table I.

The averages for the various districts, with departures from the normal, are shown in the table below:

Average cloudiness and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England	7.0	+1.4	Missouri Valley	5.0	+0.1
Middle Atlantic	6.1	+0.9	Northern Slope	4.9	+0.3
South Atlantic	4.5	0.0	Middle Slope	4.2	+0.6
Florida Peninsula	4.3	—0.3	Southern Slope	2.8	—0.4
East Gulf	4.5	0.0	Southern Plateau	2.6	+0.3
West Gulf	4.4	—0.2	Middle Plateau	4.8	+1.2
Ohio Valley and Tennessee	5.7	0.0	Northern Plateau	6.6	+0.6
Lower Lake	7.9	+0.7	North Pacific Coast	6.5	—0.3
Upper Lake	7.7	+0.7	Middle Pacific Coast	6.0	+2.2
North Dakota	5.0	—0.3	South Pacific Coast	4.2	+0.3
Upper Mississippi	5.6	+0.3			

WIND.

The maximum wind velocity at each Weather Bureau station for a period of five minutes is given in Table I, which also gives the altitude of Weather Bureau anemometers above ground.

Following are the velocities of 50 miles and over per hour registered during the month:

Maximum wind velocities.

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
Amarillo, Tex	20	52	nw.	Cleveland, Ohio	25	54	n.
Do	24	56	n.	Do	26	61	n.
Block Island, R. I	9	71	w.	Hatteras, N. C	4	51	n.
Do	10	53	w.	Do	8	53	w.
Do	22	50	w.	Indianapolis, Ind	21	51	s.
Do	26	54	ne.	New York, N. Y	8	50	sw.
Buffalo, N. Y	12	57	w.	Do	9	74	nw.
Do	21	80	w.	Do	15	50	w.
Carson City, Nev	18	54	sw.	Do	21	76	w.
Cheyenne, Wyo.	21	54	w.	Port Huron, Mich	21	52	w.
Chicago, Ill	24	50	ne.	Sacramento, Cal	21	51	se.
Cleveland, Ohio	5	54	nw.	Williston, N. Dak	9	50	nw.
Do	21	63	sw.	Winnemucca, Nev	21	54	s.

ATMOSPHERIC ELECTRICITY.

Numerical statistics relative to auroras and thunderstorms are given in Table VII, which shows the number of stations from which meteorological reports were received, and the number of such stations reporting thunderstorms (T) and auroras (A) in each State and on each day of the month, respectively.

Thunderstorms.—Reports of 976 thunderstorm were received during the current month as against 732 in 1899 and 1,533 during the preceding month.

The dates on which the number of reports of thunderstorms for the whole country were most numerous were: 20th, 115; 23d, 114; 18th, 107.

Reports were most numerous from: Illinois, 195; Missouri, 83; New York, 59.

Auroras.—The evenings on which bright moonlight must have interfered with observations of faint auroras are assumed to be the four preceding and following the date of full moon, viz, 2d to 10th.

In Canada.—Auroras were reported as follows: Father Point, 17th; Minnedosa, 3d; Prince Albert, 19th.

Thunderstorms were reported as follows: Halifax, 9th; Port Stanley, Toronto, Parry Sound, 21st; Hamilton, Bermuda, 7th and 8th.

DESCRIPTION OF TABLES AND CHARTS.

By ALFRED J. HENRY, Professor of Meteorology.

For description of tables and charts see page 453 of REVIEW for October, 1900.